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EXAMINER

AHMED, SAMIR ANWAR

ART UNIT

PAPER NUMBER

2623

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Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/130,018

Applicant(s)

OKUDA ET AL.

Examiner

Samir A. Ahmed

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE \_\_\_\_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7, 9, 10 and 13-20 is/are rejected.
- 7) ☒ Claim(s) 6, 8, 11 and 12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

## **DETAILED ACTION**

### ***Drawings***

1. Figure s 15-20 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

2. Claims 1-20 are objected to because of the following informalities: in claim 1, line 10 "picked-up, for reflecting light" should be changed to -- picked-up, from reflecting light--. Appropriate correction is required.

3. Claims 19-20 are objected to because of the following informalities: in claim 19, lines 9-10 "moving the calibration jig over the component recognition device in X, Y directions orthogonal to each other on a plane" should be changed to -- moving the calibration jig over the component recognition device in X, Y directions on a plane orthogonal to each other --. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 5, 7, 13-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 recites the limitation "is the opening" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim 13 recites "an image processing device which operates a position of the recognition part through the recognition of the recognition part", lines 4-6. It is not clear what this means or what is claimed?

Claim 13 recites the limitation "a result of the operation" in line 8. There is insufficient antecedent basis for this limitation in the claim.

As to claim 14 refer to claim 13 rejection.

Claim 15 recites, "thus operating a position of the recognition part", lines 8-9. It is not clear what this means or what is claimed?

Claim 15 recites the limitation "a result of the operation" in line 11. There is insufficient antecedent basis for this limitation in the claim.

As to claims 16-18 refer to claim 15 rejection.

Claim 19 recites, "obtained through the operation", line 7. It is not clear what this means or what is claimed?

As to claim 20 refer to claim 19 rejection.

### ***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

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only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Morita et al. (5,667,129)

The applied reference has a common assignee with the instant application.

Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

As to claim 1, Morita discloses a calibration jig for component recognition device to be used in making a coordinate system within a view field of the component recognition device provided for confirming an attitude of a component before the component is mounted to a to-be-mounted object, agree with a coordinate system of a component holding device for holding and mounting the component to the object (col. 7, lines 1-18), the calibration jig comprising:

a recognition part set at a flat face [center mark and dislocation marks on the flat surface of the jig (see figs. 18A, 18B), which is to be picked-up, for reflecting light to be picked up by the component recognition device [component recognizing camera 8 recognizes the marks on the flat face (col. 16, lines 42-59], arranged inside a periphery of the picked-up face [the marks are inside the boundary of the jig face that is photographed by camera 8, see Figs 18A, 18B], having a light reflectance different from that of the picked-up face [the marks are formed from thin film of chrome Cr, Aluminum

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Al or gold Au which inherently a different light reflectance from that of the corning glass of the jig plate (picked up face) (col. 17, lines 31-41), and for obtaining a point to be measured of the picked-up face which is a point necessary for the agreement of the coordinate systems [the center mark (point to be measured) is obtained (col. 16, lines 42-59 and used for coordinate correction (Fig.29)].

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-4, 9, 13, 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Applicant's admitted prior art (Figs 15-20) and Minamiura, Kiyotaka [Japanese Patent Publication 6-85494.

As to claim 1, Applicant's admitted prior art discloses a calibration jig for a component recognition device to be used in making a coordinate system within a view field of the component recognition device provided for confirming an attitude of a component before the component is mounted to a to-be-mounted object, agree with a coordinate system of a component holding device for holding and mounting the component to the object (Figs 15-20), the calibration jig comprising:

a flat face, which is to be picked-up, for reflecting light to be picked up by the component recognition device [Fig. 16, flat face 57, component recognition camera 47], and for obtaining a point to be measured of the picked-up face which is a point

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necessary for the agreement of the coordinate systems [Fig. 16, optical axis 53 (point to be measured) is photographed which is necessary for the agreement of the coordinate systems (page 2, line 19-page 3, line 10]. Applicants admitted prior art does not disclose, a recognition part set at the flat face, arranged inside a periphery of the picked-up face, having a light reflectance different from that of the picked-up face

Minamiura discloses a dummy component jig S of comb-toothed horizontal projections (recognition part arranged inside the boundary of the jig S), a horizontal reference reflecting plate 24 is provided at a certain distance behind the jig S. Slit light images Ro and Rs reflected from the comb-toothed horizontal projections of the dummy component jig S and the horizontal reference reflecting plate 24 located behind the jig S is recognized (i.e., the recognition part having a light reflectance different from that of the picked-up face) (abstract, Figs 2, 3, 5). It would have been obvious to one with ordinary skill in the art at the time the invention was made to use Minamiura's teachings to modify Applicant's admitted prior art calibration jig by using a com-toothed projections (pattern recognized) set inside the jig surface boundary that have a light reflectance different from that of the picked-up face of the jig in order to provide a component mounting device which precisely detects the component position and feeds back to a part mounting operation.

As to claim 2, Minamiura further discloses, wherein the recognition part is an opening bored in the picked-up face [the comb-toothed horizontal projections are openings in the photographed Jig face (Figs 3, 5)].

As to claim 3, Minamiura further discloses, which comprises a plate having

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the recognition part, and a reinforcing member set at an opposite face to the picked-up face for reinforcing the plate [the Jig S is a plate that has the comb-toothed horizontal projections (pattern recognized) and the horizontal reference reflecting plate 24 located behind the jig S is a reinforcing member (see Fig. 3)].

As to claim 4 refer to claim 3 rejection.

As to claim 9, Both Applicant's admitted prior art (Fig. 15) and Minamiura (Figs 2,3) further discloses a component mounting apparatus for handling the calibration jig for the component recognition device according to claim 1.

As to claim 10 refer to claim 9 rejection.

As to claim 13, Minamiura further discloses wherein the component recognition device illuminates the picked-up face of the calibration jig thus recognizing the recognition part (abstract, Figs 2 and 3), and Applicant's admitted prior art further discloses, is provided with an image processing device which operates a position of the recognition part through the recognition of the recognition part, calculates at least a resolution of the component recognition device based on a result of the operation, and calculates a rotational angle representing a shift of the coordinate system of the component recognition device to the coordinate system of the component holding device (page 2, line 16-page 3, line 10).

As to claim 15, Minamiura further discloses, illuminating the picked-up face of the calibration recognizing the recognition part by the component recognition device thus operating a position of the recognition part (abstract, Figs 2 and 3); and Applicant's admitted prior art further discloses, calculating a resolution of the component



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recognition device on a basis of a result of the operation; and calculating a rotational angle representing a shift of the coordinate system of the component recognition device to the coordinate system of the component holding device (page 2, line 16-page 3, line 25).

As to claim 16 refer to claim 15 rejection.

***Allowable Subject Matter***

10. Claims 6, 8, 11-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As to claim 6, the limitation "the recessed part letting the component recognition device recognize a clear outline of the opening, and an inner face of the recessed part being applied in black to suppress the reflection of light" in combination with other features of the claim and base claim are not disclosed or suggested by the prior art of record.

Claims 8, 11-12 depends from claim 6.

Claims 5, 7, 14, 17, 18, 19 and 20 would be allowable if amended to overcome the 112 second paragraph and rewritten in independent form including all of the limitations of the base claim and any intervening claims.

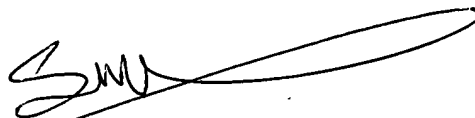
11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samir A. Ahmed whose telephone number is 703-305-9870. The examiner can normally be reached on Mon-Fri 8:30am-6:00pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on 703-308-6604. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SA



**SAMIR AHMED  
PRIMARY EXAMINER**